

Geometry

Name \_\_\_\_\_

Lesson 13: Congruence and Symmetry

Math for Standards

Date \_\_\_\_\_

*EQ: How are congruence and similarity used to show relationships between shapes?*

Congruent figures are \_\_\_\_\_. This means that they have the same \_\_\_\_\_ and \_\_\_\_\_.

Polygons are congruent if \_\_\_\_\_ have the same length and \_\_\_\_\_ have the same measure (Remember: “Corresponding” means they have the same position.)

Triangles can be shown to be congruent by \_\_\_\_\_ (\_\_\_\_\_), \_\_\_\_\_ (\_\_\_\_\_), or \_\_\_\_\_ (\_\_\_\_\_).

If you have two triangles congruent by SAS, this means you have two \_\_\_\_\_ in each triangle and the \_\_\_\_\_ in between. Notice that in “SAS,” the angle is between the sides.

If you have two triangles congruent by ASA, this means you have two \_\_\_\_\_ in each triangle and the \_\_\_\_\_ in between. Notice that in “ASA,” the side is between the angles.

If you have two triangles congruent by SSS, this means you have each \_\_\_\_\_ is equal to another in the other triangle.

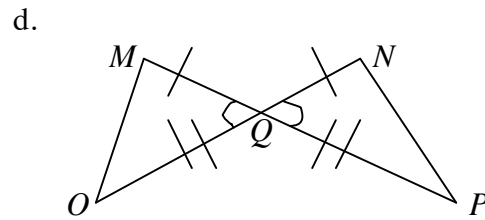
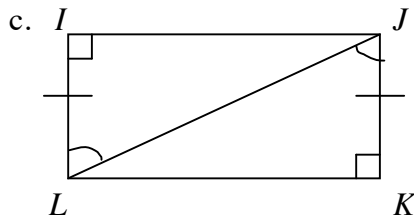
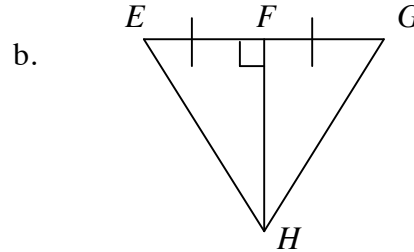
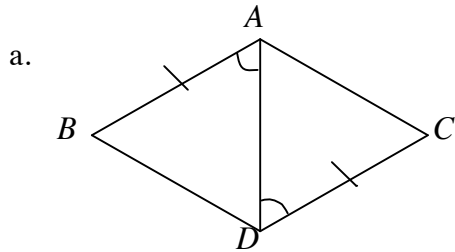
Two congruent triangles have each corresponding part of the triangles congruent as well.

Similar figures have the same \_\_\_\_\_ but different \_\_\_\_\_.

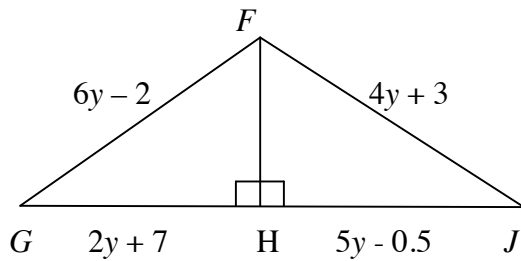
Similar figures are \_\_\_\_\_ in size. This means you can set up proportions to find different measures.

With similar polygons, not only are sides proportional, but \_\_\_\_\_ and \_\_\_\_\_ are, too.

Example 1: The given triangles are congruent. By which method (SAS, ASA, SSS) are the following congruent? How do you know?



Example 2: Triangle  $FHG$  is congruent to triangle  $FHJ$ . Find the lengths of  $\overline{FG}$ ,  $\overline{FJ}$ ,  $\overline{GH}$ ,  $\overline{HJ}$ , and  $\overline{FH}$ .



Example 3: The figures are similar trapezoids. What is the ratio of the perimeter of the larger trapezoid to the perimeter of the smaller trapezoid? What is the ratio of the area of the larger to the smaller?

